

REMARKS

Applicant thanks the Examiner for the thorough consideration given the present application.

Claims 2-5, 7, 11, 13, 14 and 16 are pending in this application. Claims 1, 6, 8-10, 12, 15, 17 and 18 are canceled without prejudice to or disclaimer of the subject matter contained therein. Claims 2-5, 11, 13 and 14 are currently amended. Claims 7 and 16 are independent.

Reconsideration of this application, as amended, is respectfully requested.

Claim for Priority

The Office Action states that claims 7, 8, 16 and 17 do not receive the benefit of the priority dates under 35 U.S.C. §§ 119 and 120. Claims 8 and 17 are canceled by the current Amendment. Claims 2-5, 11, 13 and 14 are amended to depend from claims 7 and 16. Accordingly, the currently pending claims do not get the benefit of the priority dates under 35 U.S.C. §§ 119 and 120 since the claims are only supported in the present CIP application.

Objection to Drawings

The drawings are objected to on the grounds that they fail to show necessary details for generating a noise control based on a residual noise signal and an error variation signal.

The attached replacement sheets include changes to FIG. 7 to include a variation determination unit 105d which receives the residual noise signal $E(k)$ from the mixing unit 105c and outputs the error variation signal $\Delta E(k)$. Also included are changes to FIGS. 1-5 to identify these drawings as "BACKGROUND ART," changes to FIG. 6 to show separate signals being outputted from the first low pass filter 103 to the phase perceiving part 104 and the microcomputer part 105, respectively, and the changes to FIGS. 9 and 10 discussed in the Amendment filed on January 13, 2003.

It is respectfully submitted that the drawing changes overcome the objection to the drawings and do not introduce new matter since they are supported, for example, by the description on page 6, line 12 to page 7, line 4 and page 8, lines 18-21 of the specification. Accordingly, withdrawal of the objection to the drawings is respectfully requested.

Objection to Specification

The specification is objected to because of minor informalities. Reconsideration and withdrawal of the objection to the disclosure are respectfully requested in view of the amendments herein to eliminate the informalities in the specification identified by the Examiner.

Objection under 35 U.S.C. §132

The Amendment filed on January 13, 2003 is objected to under 35 U.S.C. §132 because it introduces new matter into the disclosure. Applicant has deleted the paragraph added by the Amendment filed on January 13, 2003 after page 9, line 3. Applicant respectfully submits that the disclosure fully complies with the requirements of 35 U.S.C. §132. Accordingly, the objection under 35 U.S.C. §132 should be withdrawn.

Rejections under 35 U.S.C. §112, first paragraph

Claims 3, 7, 12 and 16 are rejected under 35 U.S.C. §112, first paragraph, for lack of enablement. These rejections are respectfully traversed.

Claims 3 and 12 are canceled without prejudice or disclaimer, thereby rendering the rejection of these claims moot.

To address the issues raised in the Office Action with respect to claims 7 and 16, FIG. 6 of the drawings and the corresponding portions of the specification have been amended to show that phase information and amplitude information of the noise signal $X(k)$ output from the first low pass filter 103 is sent to the phase perceiving part 104 and the microcomputer part 105, respectively. As for the relationship between FIGS. 6 and 10, the noise signal A, which is the same as $X(k)$, output from the noise source VI in FIG. 10 passes through the sensor part 101, the signal amplifying part 102 and the

first low pass filter part 103 in FIG. 6 before reaching the voltage sensing part I in FIG. 10. The phase perceiving part 104 in FIG. 6 includes the voltage sensing part I in FIG. 10. The CRCP 105b in FIG. 7 includes the signal decreasing part II, the bandpass filter part III and the power amp part IV in FIG. 10.

The noise control signal $Y(k)$ has approximately the same amplitude as the noise signal $X(k)$ and has a phase opposite that of $X(k)$. Ideally, $Y(k)$ is equal to $-X(k)$. However, in reality $Y(k)$ only approximates $-X(k)$ because of the difficulty of controlling $Y(k)$. Accordingly, a residual noise signal $E(k)$ results, where $E(k) = X(k) - Y(k)$. The value of the $E(k)$ can increase or decrease. If the value of $E(k)$ increases, then $\Delta E(k)$ also increases. CRCP 105b control $Y(k)$ so that $E(k)$ and $\Delta E(k)$ approach zero and $Y(k)$ approaches $X(k)$.

It is respectfully submitted that in view of the amendments herein to the specification and claims, as well as the foregoing explanation, the claims of the present application are fully enabled. Accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. §112, first paragraph, are respectfully requested.

Rejections under 35 U.S.C. §103(a)

Claims 2, 5, 6, 11, 14 and 15 are rejected under 35 U.S.C. §103(a) as being unpatentable over Applicants' disclosed related art (APA) in view of U.S.

Patent No. 5,434,925 to Nadim. Claims 3 and 12 are rejected under 35 U.S.C. §103(a) as being unpatentable over the APA in view of Nadim and further in view of U.S. Patent No. 4,630,305 to Borth et al. Claims 4 and 13 are rejected as being unpatentable over the APA in view of Nadim and further in view of U.S. Patent No. 5,583,968 to Trompf. Claims 8, 9, 17 and 18 are rejected as being unpatentable over the APA in view of Nadim and further in view of U.S. Patent No. 5,499,301 to Sudo et al. These rejections are respectfully traversed.

Claims 6, 8, 9, 12, 15, 17 and 18 are canceled without prejudice or disclaimer, thereby rendering the rejections of these claims moot. Claims 7 and 16 are independent are not rejected over the prior art. Claims 2-5 are amended to depend from claim 7, and claims 11, 13 and 14 are amended to depend from claim 16.

The Office Action relies on Nadim for a teaching of generating an error signal by mixing a noise signal with a noise control signal, since this teaching is not disclosed by the APA.

As explained in the Amendment filed on January 13, 2003, in contrast to Applicant's claimed invention, Nadim merely discloses an active noise reduction apparatus in which noise from an engine 1 is canceled by cancellation noise from a loudspeaker 2 driven by a controller 3, as shown in FIG. 1. The difference between the noise from the engine 1 and the cancellation noise is detected as an error signal by microphone 4 and the error signal is applied to a feedback loop so that the error signal can be minimized.

The error signal is a function of an output signal produced by the controller 3 and a noise signal.

Nadim does not teach or suggest a phase perceiving part or method for transforming a noise signal, full-wave rectifying the transformed noise signal, converting the fully rectified signal and bandpass filtering the converted signal, as required by claims 7 and 16. Borth et al., Trompf and Sudo et al. do not cure the deficiencies of the APA and Nadim.

Accordingly, it is respectfully submitted that the cited art fails to disclose or render obvious the present invention as set forth in the independent claims, which are therefore allowable. Since the remaining claims depend directly or indirectly from allowable independent claims, they should also be allowable for at least the reasons set forth above, as well as for the additional limitations provided thereby. Therefore, all pending claims should be in condition for allowance.

CONCLUSION

Since the remaining patents cited by the Examiner have not been utilized to reject claims, but merely to show the state of the art, no comment need be made with respect thereto.

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. It is believed that a full and complete

response has been made to the outstanding Office Action, and that the present application is in condition for allowance.

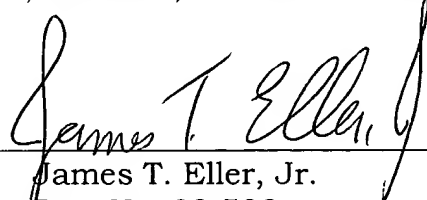
Should any issues remain, however, the Examiner is invited to telephone Sam Bhattacharya (Reg. No. 48,107) at (703) 205-8000 in an effort to expedite prosecution.

Applicants respectfully petition under the provisions of 37 C.F.R. 1.136(a) and 1.17 for a three-month extension of time in which to respond to the Examiner's Office Action. **The Extension of Time Fee in the amount of \$930.00 is being paid concurrently with the filing of the Notice of Appeal.**

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17, particularly extension of time fees.

Respectfully submitted,

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By 
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0214-0169P
Attachments
JTE:SB:mmi:sld
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Attachment: Replacement Sheets
Annotated Sheets

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